

Looking Backward: Founding Choices in Innovation and Intellectual Property Protection

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INTRODUCTION

From the distance of more than two hundred years, casual consideration of “the Founding” of American institutions tends to convey the impression of a defining discrete moment in time, the outcome of an epiphany experienced by the cadre of extraordinary individuals who established those early rules and standards. The intellectual property clause of the constitution especially might project this aura of inevitability because it was passed unanimously and without debate, with the intent to “promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.” Instead, a closer examination reveals a less coherent narrative, featuring conflicts among key players, political and personal compromises, and the evolution of views and doctrines over the years. In short, it is worth noting that the Founding was not a moment, but a process, and the Founders’ choices were initially expansive and fluid, before crystallizing into a system of patents and copyrights that was unique in its objective and structure relative to any other in the world then and since.

The individuals who met in Philadelphia for the Constitutional Convention of 1787 clearly did not start with a blank slate nor with a well-defined consensus. The Articles of Confederation were a starting point for a number of political and economic issues, but this document failed to address questions of innovation and intellectual property. Instead, the policies that were introduced in the Constitution and the statutes that elaborated on the constitutional clause were developed from, and in reaction to, an array of other sources. These included the example of other countries (especially France and England), the experience of the American colonies and states, personal views of influential members of the convention, and (more diffusely) the writings of political economists and philosophers.

The framers of the U.S. Constitution and the early statutes were undoubtedly familiar with historical events and with the contemporary European model of intellectual property. Yet, they

chose to make important changes in the parameters of property rights in invention (broadly defined), including how and to whom they were awarded. Their revealed objectives were to provide more widespread access to such property rights, to facilitate the diffusion of information to the general public, and to develop markets in inventive rights and inventions. If the design of institutions mattered in the direction they predicted, then these “founding choices” in the realm of patents, copyrights and innovation policies enhanced the rate and direction of economic, technological and cultural change.

This chapter assesses the options initially available, those exercised, and the consequences of the paths taken in the realm of intellectual property and innovation. The first section traces the early European use of exclusive privileges to promote the introduction of books, manufacturing and machine inventions. The next section examines the nature of colonial laws and policies regarding patents, copyrights and innovation, and that is followed by an account of the experiences of the American states between independence and 1787. These precursors ultimately led to the intellectual property clause of the U.S. Constitution, and the two major patent and copyright statutes that were enacted in 1790 to “promote the progress of science and useful arts.” The final section summarizes the evolution of the intellectual property system, and briefly considers the consequences of these “Founding Choices” for economic and social development in the United States.

I. EUROPEAN PRECEDENTS

The fundamental element of property rights in invention (broadly defined to include new and improved machines, processes, and cultural products) comprises a right to exclude, and such exclusive rights can be traced back to classical antiquity. Early rights of exclusion were associated with royal and state-created “privileges.” The privilege system did not explicitly distinguish between exclusive rights for mechanical inventions and restrictions on rights to copy such items as books and music. Moreover, such proprietary rights were not necessarily associated with novelty and innovation. Instead, privileges tended to establish monopolies in a wide variety of areas, from intellectual endeavours to manufactured products, as well as barriers to entry in guilds and

occupations. The notion of rights in intellectual products, that could be protected through exclusion or trade secrecy, emerged more clearly during the medieval period. Privileges for books and new inventions were frequently granted in fifteenth-century Venice and Florence, but the most notorious and widespread use of such policy devices occurred later in France and England in the sixteenth century.

Books and other written matter were initially regarded as part of the public domain when they were published, but replication rights in cultural products became more significant after the invention of mechanical means of printing. Privileges for both books and inventions were noted in the Republic of Venice in the fifteenth century, a practice which was soon prevalent in a number of other European jurisdictions. For instance, Donatus Bossius, a Milanese author, petitioned the duke in 1492 for an exclusive privilege for his book. He successfully argued that he would be unjustly deprived of the benefits from his efforts if others were able to freely copy his work, and obtained a privilege for a term of ten years. However, authorship was not required for the grant of a privilege, and printers and publishers acquired monopolies over existing books as well as new works. Such privileges were granted on a case by case basis by a number of different authorities: grantors included religious orders and authorities, universities, political figures, and the representatives of the Crown. The rights they offered varied in geographical scope, duration, and breadth of coverage, as well as in terms of the attendant penalties for their violation.

The extensive French privilege system allowed protection for books or translations, maps, type designs, engravings and artwork, dance, opera and musical performances. Exclusive rights in printed material were introduced in 1498 and such grants were well-established by the end of the sixteenth century (Armstrong 1990). Privileges were under the auspices of the monarch, and generally were given for a brief period of two to three years although the term could be as much as ten years or in perpetuity. Petitioners paid formal fees and informal gratuities to the officials concerned. The courts sometimes imposed limits on the rights conferred, such as stipulations about the prices that could be charged, and the region in which they applied. Privileges were property that could be assigned or licensed to another party, and their infringement could be punished by

finer, imprisonment or confiscation of the output of “pirates.” By the late eighteenth century an extensive administrative procedure was in place that was designed to restrict the number of presses and facilitate the state’s surveillance and censorship of the publishing industry.

A French decree of 1777 established that authors who did not alienate their property were entitled to exclusive rights in perpetuity, but made a distinction in the rights accorded to publishers. Few authors had the will or resources to publish and distribute books, so their privileges were likely to be sold outright to professional publishers, in which case the privilege was only accorded a limited duration, the exact term to be determined in accordance with the value of the work or the influence of the petitioner. Once the publisher’s term expired the work passed into the public domain. Between 1700 and 1789, more than 2,500 petitions for exclusive privileges in books were filed, and about two thirds were granted. The result was a system that resulted in “odious monopolies,” higher prices and greater scarcity, large transfers of revenues to officials of the Crown and their allies, and pervasive censorship.

England similarly experienced a period during which book privileges were granted, such as a seven-year grant from the Chancellor of Oxford University for an 1518 work. A momentous royal charter in 1557 authorized the formation of the Worshipful Company of Stationers, a publishers’ guild that would control the book trade for more than two hundred years. This company created and controlled the right of their constituent members to make copies, so in effect their “copy right” was a private property right that existed in perpetuity, independently of state or statutory rights. The Stationers’ Company maintained a register of books, issued licenses, and sanctioned individuals who violated their regulations. Enforcement and regulation were carried out by the corporation itself through its Court of Assistants. Thus, in both England and France, copyright law began as a monopoly grant to benefit and regulate the printers’ guilds, and as a means of surveillance and censorship over public opinion on behalf of the Crown.

The English system of book privileges was replaced in 1710 by a copyright statute (the “Statute of Anne”). The statute intended to restrain the publishing industry and destroy its monopoly power. It was not directed toward authors and had little to do with questions of rewards

for creativity. According to this landmark law, copyright was available to anyone, not just to the Stationers. Instead of a perpetual right, the term was limited to fourteen years, with a right of renewal, after which the work would enter the public domain. Subsequent litigation and judicial interpretation added a new and fundamentally different dimension to copyright. In order to protect their perpetual copyright, publishers promoted the idea that copyright was based on the natural rights of authors or creative individuals. If indeed copyrights derived from these inherent principles, they represented property that existed independently of statutory provisions and could be protected at common law in perpetuity. As the supposed agent of the author, those rights would devolve to the publisher. The booksellers engaged in a series of strategic litigation that culminated in their defeat in the landmark case, *Donaldson v. Beckett* [98 Eng. Rep. 257 (1774)]. The court ruled that authors did possess a common law right in their unpublished works, but on publication that right was extinguished by the statute, whose provisions determined the nature and scope of any copyright claims.

In effect, the transition from publishers' rights to statutory authors' rights was perhaps more based on perception than reality, but it had fundamental implications for the ease with which expansions in such property rights could be defended on the grounds of creativity and personhood. This tension between publishers and authors would recur in the American context, but with less force, because the colonies openly emphasized the pragmatic need to facilitate learning and the diffusion of "useful knowledge," rather than to reward cultural elites who exhibited "genius and creativity."

A similar historical process can be discerned in the development of patents for invention. The modern patent grant also emerged out of Venetian privileges, perhaps as early as the thirteenth century, but certainly by the fifteenth century the practice of granting exclusive rights for inventions was well established. Novelty was not a requirement, and patents could be granted for foreign innovations that were being introduced by an importer. Many of these early grants comprised petitions that were approved on an individual basis, but a landmark statute in 1474 allowed

exclusive rights to authors and inventors for ten years.¹ Despite these precursors at law, Britain stands out for having established a statutory patent system which has been in continuous operation for a longer period than any other in the world. This patent system was an outgrowth of a régime of privileges, whereby the English Crown bestowed vast numbers of monopoly rights in order to raise revenues and to reward favourites. These ultimately caused vociferous popular protests against “odious monopolies” that included specific products and industries, trades and occupations from alehouses to apothecaries, as well as printing and publishing. At the same time, the common law deprecated monopolies, but also supported the principle that new inventions and risky ventures deserved protection for a limited time in order to benefit the common good.²

The Commons finally succeeded in a petition that outlawed all monopolies, with the exception of new inventions. The Statute of Monopolies in 1624 codified existing common law policies, by authorizing patent grants for fourteen years for “the sole making or working of any manner of new manufacture within this realm to the first and true inventor...so they be not contrary to the law nor mischievous to the State by raising of the prices of commodities at home, or hurt of trade, or generally inconvenient.”³ The “first and true inventor” was interpreted to include introducers of inventions that had been created abroad, and the roster of successful patentees included employers of the actual inventor, as well as patent agents applying on behalf of their customers. These grants were viewed as monopolies; as such, they were grudgingly granted and narrowly construed and circumscribed.

¹ The statute averred that “We have among us men of great genius, apt to invent and discover ingenious devices; and in view of the grandeur and virtue of our City, more such men come to us every day from divers parts. Now, if provision were made for the works and devices discovered by such persons, so that others, who may see them could not build them and take the inventor’s honor away, more men would then apply their genius, would discover, and would build devices of great utility and benefit to our commonwealth” (Bugbee 1967, note 10, p. 22).

² In Britain before this period a series of common law decisions (as opposed to statutory rules) had dealt with the requirements of patents for invention. For example, the famous 1602 case *Darcy v. Allin* held: “Where any man by his own charge and industry or by his wit or invention doth bring any new trade into the realm, or any engine tending to the furtherance of trade that never was used before; and that, for the good of the Realm; that in such cases the King may grant to him a monopoly patent for some reasonable time until the subjects may learn the same...”

³ 21 Jac. I. C. 3, 1623, Sec. 6.

Another important feature of the British patent system was that it established significant barriers that deliberately limited access to property rights in invention. The application costs were prohibitively high relative to per capita income. Inventors who wished to obtain protection throughout the realm had to contend with the bureaucracy of three patent systems, and to pay fees that ranged from £100 for an English patent to more than £300 for property rights that extended to Ireland and Scotland. The complicated system also effectively inhibited the diffusion of information and made it difficult, if not impossible, for inventors outside of London to readily conduct patent searches. The cumbersome system (variously described as “mediaeval” and “fantastical”) afforded ample material for satire, but imposed severe constraints on the ordinary inventor who wished to obtain protection for his discovery. Attitudes toward patents were imbued with the distaste felt for speculation, and restrictions on trade in stocks were extended to markets in patent rights.

European states offered a large array of inducements and rewards for innovation, in addition to rights of exclusion in the form of patent and copyright grants. These included a proliferation of institutions directed toward the “the encouragement of arts and manufactures.” A board for that purpose was established in Edinburgh in 1727, and in England the Society for the Encouragement of Arts and Manufactures was founded in 1754, according to a plan published by Benjamin Franklin. In particular, French policies toward inventions and innovations in the eighteenth century are worth a close examination, because they comprised a cornucopia of rewards and incentives that illustrate the relative benefits and costs of alternative routes to statutory grants of intellectual property rights. During this period inventors or introducers of inventions could benefit from titles, pensions that sometimes extended to spouses and offspring, loans (some interest-free), lump-sum and land grants, bounties or subsidies for production, exemptions from taxes, and monopoly privileges. Exclusive rights could extend to a specific region or throughout the entire kingdom, and their term varied from five years to perpetuity.

This portfolio of policy instruments provides insights into the efficacy of awards that were administered by the state on a case by case basis. On occasion, prior examination by a committee

of qualified individuals was required before applicants could receive awards, and led to the encouragement and introduction of productive technologies. Nevertheless, such grants and privileges were typically capricious and based on non-economic criteria. Eighteenth-century correspondence and records provide numerous examples of awards that were made based on court connections. At the other end of the spectrum large sums were awarded to the “deserving” on the basis of arbitrary factors such as age, deportment, religious piety or family need. Members of the board of examiners, even if scientifically trained, were not necessarily qualified to assess their potential commercial value. Should the privilege actually prove to be commercially successful, active trade in the rights was inhibited because prior permission had to be secured. Moreover, the administrative and opportunity costs of such a system were nontrivial on the part of both supplicants and the state bureaucracy.⁴ Applicants were well aware of the political dimension of innovation (Hilaire-Pérez 2000). They were also aware that promises made as inducements were not necessarily enforceable once the inventor had made fixed investments.⁵

II. AMERICAN COLONIES

Any genealogy of eighteenth-century legal codes undoubtedly branches from the seeds of the first colonial governments in America.⁶ Colonial legislators did not “dismantle” European legal rules and standards, as popular histories frequently propose. Neither did they slavishly replicate the institutions and practices that prevailed in other countries. Observers have been impressed by the

⁴ For instance, see F/12/4824 in the Archives nationales, which includes about three inches of documents relating to help accorded to a single individual, Albert Charles, an English machinist who introduced new methods of textile manufactures, including cotton carding machines, that he learned in Manchester. Albert Charles was given a pension of 500 francs per year from 1840 until his death in 1852. The files include in tabular form the biography of Charles each year from his birth in 1764. The table notes the facts of his contributions as well as the evidence to support each fact. Also included are the annual letters that the widow sent to claim her pension, which was increased from 300 francs in 1867 to 400 francs in 1868.

⁵ The famous textile inventor, John Kay, illustrates the asymmetries involved in individual bargains struck with state authorities. Kay settled in France because of promises to subsidize the transfer of technology and substantially aided in the diffusion of textile machinery. The Society for the Encouragement of Arts and Manufacturing in England promised him a generous award to return there then reneged once he was in London. Kay wrote early in 1761 to Prudaine de Montigny, Conseiller d’Etat in London, to explore the possibility of receiving French financial aid if he again immigrated to Paris. Later that same year, Kay wrote to M. de Brou, Intendant de Rouen, to complain that he was still not receiving the pension he had been promised.

⁶ “The whole structure of our political institutions is the natural production of the principles laid down by the founders of the several States,” according to Towle (1871, p. 297).

fluidity of the colonial legal institutions and the extent to which they responded to the needs of society.⁷ One can detect the influence of the principles and customs of the Old World, but at the same time institutional innovation necessarily occurred to encompass the circumstances that prevailed in the New World. The colonies initially followed a similar model to Europe, allowing monopolies and privileges in the form of patents of introduction, as well as other encouragements for infant enterprises and imported discoveries, and later offered exclusive rights solely for novel contributions.

The original American colonies were subject to the laws of Britain and the terms of their charters, but they also had considerable leeway in their ability to adapt and introduce rules that were more appropriate to domestic circumstances. For instance, the 1691 Charter of the Massachusetts Bay Commonwealth stated that self-government implied the adoption of colonial laws as long as they were “not repugnant or contrary to the Lawes of this our Realme of England.” Similarly, the Carolina Charter of 1663 granted full discretion, “Provided nevertheless, that the said laws be consonant to reason, and as near as may be conveniently, agreeable to the laws and customs of this our kingdom of England.” The original colonies introduced legal rules and institutions that differed from each other at the time of their establishment, but the laws and their enforcement gradually coalesced and converged. They tended in large part toward the Massachusetts and Virginia models but, in any event, the new American legal order ultimately deviated substantively from their European precedents, especially in the realm of patents and copyrights.

A frequent and significant source of conflict between England and the colonies related to economic policy, including the efforts to promote American innovation at the expense of imports from Europe.⁸ Sir Ferdinando Gorges was awarded the monopoly of fishing in New England in the 1620s, but his privilege was never enforced because of protests in the colonies. The colonies were

⁷ This observation is not intended to imply that the law teleologically evolved toward an efficient outcome, nor to underestimate the way in which the interests of certain parties, including slaves and Native Americans, were subsumed in those of the dominant socioeconomic groups.

⁸ Rhode Island repealed a 1751 act to offer bounties for woolen textiles for fear that “it may draw the displeasure of Great Britain upon us, as it will interfere with their most favorite manufactory.” According to Clark, the colonies offered bounties for flax instead in order not to antagonize the British wool manufacturing interests (Clark 1916, 34-35).

somewhat ambivalent about employing the policy and practice of exclusive rights themselves. On the one hand, the settlers avowed an aversion to monopolies such as the Gorges grant, and the 1629 charter of the Massachusetts Bay Company repeatedly stressed that the colonists “shall have full and free Power and Liberty to continue and use their said Trade of Fishing.” In December 1641 the General Court of the colony of Massachusetts adopted "The Body of Liberties", the first code of laws enacted in New England.⁹ In particular, the ninth clause is noticeably similar to the Statute of Monopolies: “9. No monopolies shall be granted or allowed amongst us, but of such new Inventions that are profitable to the Country, and that for a short time.”¹⁰

On the other hand, numerous monopoly grants mimicked the privileges that were outlawed by the British Statute of Monopolies in 1624. A few months before the passage of the Body of Liberties, the Massachusetts Bay Colony granted Samuel Winslow a 1641 patent for the monopoly right to produce salt using a new method for ten years, but it is unclear whether he had devised the invention or merely imported it.¹¹ Salt was important to the colonists and, despite the code, similar awards were made in subsequent years, including a 1656 monopoly to Governor Winthrop’s son for yet another method of making salt. Exclusive rights were also permitted for merchants who introduced methods from overseas that were new to the colony. John Clark was even allowed to retain in perpetuity the monopoly right to charge 10 shillings per family for use of his stove invention. Some of the patents specified the prices that were to be charged and the quantities. Others included stipulations such as local residency: in April 1641, the town of Plymouth agreed to allow John Jenny and his partners the exclusive rights to make salt for twenty one years, provided that he sold the salt for two shillings a bushel, and did not assign the right to any resident from outside the town. Dirck de Wolff was given a similar privilege to produce salt in New Netherlands

⁹ Nathan Ward, an emigrant from England, compiled this remarkable document. Ward, a minister of the church, and a graduate of Emmanuel College of Cambridge University, had also studied and practiced law in England.

¹⁰ The document consisted of ninety eight clauses, a preamble and a conclusion, largely drawn from biblical admonitions and British precedents. These principles comprised the major structure of laws in the colony for much of the rest of the seventeenth century. Clause 9 was preserved in p. 62 of the Acts of 1660 and p. 119 of the Acts of 1672 (Whitmore 1890).

¹¹ The grant was qualified by a working requirement to establish a factory within one year, and also allowed others to make salt using different methods from the one covered by the patent.

in 1661. However, the Dutch colonists exhibited an aversion to monopoly grants “as it is in our opinion a very pernicious management, principally so in a new and budding State, whose population and welfare can not be promoted but through general benefits and privileges, in which every one ... either as a merchant or a mechanic, may participate” (cited in Clark 1916, p. 47). This emphasis on open access would be reflected in later conceptions of a uniquely American system.

The colonial legislatures enacted statutes that were designed to protect and encourage domestic manufactures, including an extensive portfolio of such policy instruments as tariffs, loans, bounties, premiums and subsidies. In 1621 the Virginia Company induced William Norton and his family to immigrate with four Italian artisans to the New World in order to manufacture glass, in part to produce beads to trade with the natives. He was accorded a seven-year privilege for the exclusive manufacturing rights, royalties, and free land; transportation costs, expenses and tools were provided as well (Brock 1999, 130). Premiums were a popular instrument for encouraging manufactures, such as an award William Penn offered for the highest quality linen made in the colony. Maryland funded its premiums for superior textile products through annual taxes at the county level. However, individual donations and subscriptions also paid for prizes, especially later in the eighteenth century. Virginia tried in 1759 (apparently with limited success) to found a corporation “for encouraging arts and manufactures” to offer prizes for discoveries new to the colony.

Another important item for the early colonists, sawmills, were the subject of the first patent in the modern sense of protecting new manufacturing processes and mechanical inventions. The General Court of Massachusetts granted a monopoly in 1646 to Joseph Jenks for fourteen years, for his improvements in water mills and the manufacture of scythes: “for a newly invented sawmill that things may be afforded cheaper than formerly, and that for fourteen years without disturbance by any others setting up the like invention so that his study and cost may not be in vain or lost, so as power is still left to restrain the exportation of such manufactures, and to moderate the prices

thereof if occasion so require.”¹² In 1655 Jenks was issued exclusive rights for another scythe “for the more speedy cutting of grass, for seven years.”

Like Massachusetts, Connecticut adopted a code of laws that included a clause regarding monopolies, and in 1672 declared its intention to encourage the importation of foreign methods of manufactures. The legislators established an examination board to assess the apparently large number of applications that inventors and introducers submitted between 1708 and 1789, and made their decisions based on “the comparative importance of the discovery claimed, or the branch of manufactures proposed to be introduced.” The term of the patents varied between three and fifteen years. For instance, in 1728 Samuel Higley and Joseph Dewey applied for patent rights for twenty years for improvements in steel making; they were given an exclusive right for ten years, with a two-year probationary period during which they were expected to improve “the art to any good and reasonable perfection” (Commissioner of Patents, 1850, 550). Many of the petitions stressed the cost to the inventor and the potential benefit to the public. When Benjamin Dearborn approached the New Hampshire legislature in 1786, he declared that “as your petitioner has spent much time and money in a variety of inventions, which may be of public utility, he is desirous of enjoying some exclusive benefit from some of them” (Commissioner of Patents, 1850, 577-8). The special act granting him exclusive rights for 14 years also specified that infringers would have to pay a penalty of double the value of the invention.

The southern colonies were also involved in offering inducements for inventive activity and innovation. Notably, South Carolina passed a 1691 statute “for the better encouragement of the making of engines for propagating the staples of this colony”, and early in the eighteenth century granted a number of patents for machine inventions. In 1759 Virginia introduced “an act for encouraging arts and manufactures,” which awarded prizes for new discoveries and the establishment of new manufacturing industries (Clark 1916, p. 38). Similarly, Virginia’s “Plan for the encouragement of Arts and Manufactures reported, and unanimously agreed to, Monday, March

¹² Jenks’ application referred to his “desire to improve this talent for the public good and benefit and service of this country” (Defebaugh 1907, 185).

27, 1775” urged that “as Salt is a daily and indispensable necessary of life, and the making of it amongst ourselves must be deemed a valuable acquisition, it is therefore recommended that the utmost endeavours be used to establish Salt Works, and that proper encouragement be given to Mr. James Tait, who hath made proposals, and offered a scheme to the publick, for so desirable a purpose.” The list of manufactured goods that the colony wished to encourage included saltpeter, sulphur, gunpowder, cloth and nails. The convention “earnestly recommended that Societies be formed in different parts of this Colony; and it is the opinion of this Convention, that proper Premiums ought to be offered in the several Counties and Corporations, to such persons as shall excel in the several branches of Manufactures.”

Privileges comprised part of an economic policy to enhance growth, often a protection analogous to an infant industry subsidy, rather than a fulfillment of any abstract philosophical vision of natural rights. The attitude of these early founders was echoed in a communication of Thomas Jefferson’s, dismissing the natural rights argument with the statement that “it would be singular to admit a natural and even an hereditary right to inventors.”¹³ As such, the colonial legislatures frequently appended conditions to the privileges they granted, at the risk of annulment, including working requirements, price controls, assured performance in such dimensions as quantity or quality, and geographical limits on the scope of the monopoly. The patent granted to

¹³ Thomas Jefferson’s letter to Isaac McPherson, August 13, 1813 further stated: “Stable ownership is the gift of social law, and is given late in the progress of society. It would be curious then, if an idea, the fugitive fermentation of an individual brain, could, of natural right, be claimed in exclusive and stable property. If nature has made any one thing less susceptible than all others of exclusive property, it is the action of the thinking power called an idea, which an individual may exclusively possess as long as he keeps it to himself; but the moment it is divulged, it forces itself into the possession of every one, and the receiver cannot dispossess himself of it. Its peculiar character, too, is that no one possesses the less, because every other possesses the whole of it. He who receives an idea from me, receives instruction himself without lessening mine; as he who lights his taper at mine, receives light without darkening me.... Considering the exclusive right to invention as given not of natural right, but for the benefit of society, I know well the difficulty of drawing a line between the things which are worth to the public the embarrassment of an exclusive patent, and those which are not. As a member of the patent board for several years, while the law authorized a board to grant or refuse patents, I saw with what slow progress a system of general rules could be matured.” Jefferson’s attitude varied over time, from a rejection of monopoly rights (which he thought should have been included in a bill of rights), to a limited acceptance. In July 1788 he wrote to Madison that “The saying that there shall be no monopolies, lessens the incitements to ingenuity, which is spurred on by the hope of a monopoly for a limited time, as of fourteen years; but the benefit of even limited monopolies is too doubtful to be opposed to that of their general suppression,” (Jefferson 1900, 582). Later in an 1807 letter to Oliver Evans, he opined that the patent term should be longer than the English grant, to take into account the undeveloped state of the American economy.

the Jerom brothers in 1746 to make sea salt in Connecticut would be revoked unless they consistently produced stipulated quantities. Edward Hinman's 1717 patent for making molasses from corn stalks required that the product should be as good and as cheap as the imports from the West Indies.

Both conceptually and in practice, European and colonial histories of privileges and monopolies often bundled exclusive rights without distinguishing between mechanical inventions and cultural inventions. Pennsylvania's Frame of Government in April 1683 presciently declared that it intended to "erect and order all public schools, and encourage and reward the authors of useful sciences and laudable inventions in the said province." Benjamin Dearborn's 1786 grant from New Hampshire bundled a patent for two mechanical inventions with copyright protection for a math textbook. In most other colonies authors applied for special legislative favours, such as John Usher's successful appeal to the Massachusetts General Court, for a printing monopoly in *The Book of General Lawes and Liberties*. His 1672 patent ensured for seven years "That no Printer shall print any more Coppies than are agreed and paid for by the owner of the Coppie or Coppies, nor shall he nor any other reprint or make Sale of any of the same without the said Owner's consent upon the forfeiture and penalty of treble the whole charges of Printing and paper of the quantity paid for by the owner of the Coppie, to the said owner or his Assigns." This "patent" may be regarded as the first formal de facto copyright to be granted in the American colonies.

III. STATE PRECEDENTS

Intellectual property issues were not addressed in the Articles of Confederation, but the notion of securing protection for authors and inventors was in circulation in the press, in legislatures, and in Congress. In January 1783 a Connecticut representative to Congress, Oliver Wolcott, asserted in a letter that "he ever was of Opinion that the Copy Rights of every Author ought to be secured to him under certain Limitations," and later the same year noted that he intended "to secure if I can to Authors their Copy Rights--for Some Time past Congress have been too much Occupied by

important Subjects to introduce a Matter of this Nature” (Smith 1976-2000).¹⁴ This might seem to imply that such policies were not regarded as significant but, as Madison (1788) pointed out, “The utility of this power will scarcely be questioned. The copyright of authors has been solemnly adjudged, in Great Britain, to be a right of common law. The right to useful inventions seems with equal reason to belong to the inventors. The public good fully coincides in both cases with the claims of individuals. The States cannot separately make effectual provisions for either of the cases, and most of them have anticipated the decision of this point, by laws passed at the instance of Congress” (Madison 1788).

Indeed, after the Revolution, Congress prompted the individual states to formalize policies toward inventors and authors. Notably, in May 1783 the Colonial Congress recommended that the states “secure to the authors or publishers of any new books not hitherto printed, being citizens of the United States... the copy right of such books for a certain time not less than fourteen years from the first publication” (Sorvald 1900). That year, Connecticut became the first state to approve an “Act for the encouragement of literature and genius” because “it is perfectly agreeable to the principles of natural equity and justice, that every author should be secured in receiving the profits that may arise from the sale of his works, and such security may encourage men of learning and genius to publish their writings; which may do honor to their country, and service to mankind.” Although this preamble might seem to strongly favour authors’ rights, the statute also specified that books were to be offered at reasonable prices and in sufficient quantities, or else a compulsory license would issue.

Between 1783 and 1786 all of the original states, with the exception of Delaware, likewise complied by enacting copyright laws. These statutes tended to articulate the utilitarian objectives of their legislatures, claiming that copyright was needed in order to encourage learning and education. Pennsylvania’s statute was intended “for the encouragement and promotion of learning” and

¹⁴ See also Paine (1782): “It is more than probable, notwithstanding the declarations it contains, that the copy was obtained for the sake of profiting by the sale of a new and popular work... It may with propriety be remarked, that in all countries where literature is protected, and it never can flourish where it is not, the works of an author are his legal property; and to treat letters in any other light than this, is to banish them from the country, or strangle them in the birth.”

directed toward “useful books.” The copyright declaration of the state of New York also included plans to fund an educational academy in Kings County. North Carolina echoed the common theme that “it is proper that men should be encouraged to pursue useful knowledge by the hope of reward; and ... the security of literary property must greatly tend to encourage genius, to promote useful discoveries, and to the general extension of arts and commerce.”

In keeping with these social objectives, and to ameliorate any monopolistic consequences, many of the clauses included restrictions on the rights of the copyright holder. South Carolina’s “Act For the Encouragement of Arts and Sciences” granted any person who wished to print a copy of a new or existing book “the sole right and liberty of printing such book and books, for the term of fourteen years,” on registration with the secretary of the state. However, this exclusive right did not extend to books in foreign languages from overseas. Copyrighted books had to be sold at a reasonable price, or else a compulsory license could be issued at the discretion of the courts. Similarly, Georgia’s law noted that “it is equally necessary for the encouragement of learning, that the inhabitants of this State be furnished with useful books, &c., at reasonable prices.” Massachusetts offered authors exclusive rights for twenty-one years, with a depository requirement.¹⁵ North Carolina’s statute allowed for the reprinting of foreign materials, and echoed the censorship of British laws by prohibiting copyrights in “books, maps or charts which may be dangerous to civil liberty, or to the peace or morals of society.”

Although the majority of states enacted laws toward copyright after 1783, only South Carolina appended a general statement that included patent grants. South Carolina’s “Act For the Encouragement of Arts and Sciences” allowed that “the inventors of useful machines shall have a like exclusive privilege of making or vending their machines for the like term of fourteen years,” under the same terms as for owners of copyrights. However, this did not imply that patents were

¹⁵ The Preamble to the Massachusetts Constitution of 1780, Ch. 5, Sec. 2 proclaimed: “Wisdom and knowledge, as well as virtue, diffused generally among the body of the people, being necessary for the preservation of their rights and liberties; and as these depend on spreading the opportunities and advantages of education in the various parts of the country, and among the different orders of the people, it shall be the duty of legislatures and magistrates, in all future periods of this commonwealth, to cherish the interests of literature and the sciences;... to encourage private societies and public institutions, rewards and immunities, for the promotion of agriculture, arts, sciences, commerce, trades, manufactures....”

automatically available, since inventions were still obtained through ad hoc legislative instruments that responded to petitions filed by specific individuals. As in the case of copyright protection for books, the legislatures conditioned the patent grants on compliance with conditions, such as maximum prices, compulsory licensing and working requirements.

In 1786 a patent was granted to Peter Belin for “the exclusive right of constructing and vending sundry useful water machines.” The patent made reference to the “labor, attention, hazard and expense” of the petitioner, whose discoveries would be “of great utility to the citizens of this State.” Infringers would have to pay 100 pounds in damages. The patentee had to file models with the authorities, and could not refuse requests to build the water works at “a just and reasonable price” or else a compulsory license would issue (Cooper 1838). In 1788 Samuel Knight obtained from the state of South Carolina “the exclusive right of constructing and vending a machine for the pounding of rice” for fourteen years. The patentee was required to deposit a model or “exact plan” with the secretary’s office, not to ensure an increase in social knowledge, but for the specific purpose of preventing and proving unknowing infringement. Infringers would be fined fifty pounds sterling, but at the same time Knight was obligated to issue a license at the set fee of five pounds to anyone who applied. The preamble to another private act that day declared that “authors and inventors should be secured in receiving the profits that may arise from the sale or disposal of their respective writings and discoveries” (Cooper 1839, 69-70).

Several patentees obtained patent rights in more than one state. Henry Guest, a resident of New Brunswick, received the exclusive right to make currier’s oil and blubber, from both the Pennsylvania and New York legislatures. He deposited sealed samples and a description of his invention with the clerk of the assembly. The New York law included a provision of treble damages for infringement. The act would not take effect until the inventor filed “a writing containing the names and descriptions of the materials aforesaid, and the method and process of making such blubber and oyl... nor until the said Henry Guest shall have a manufactory erected for the purpose... within this state” (New York 1886, 780). The steamship inventors, John Fitch, James Rumsey and Robert Fulton, and Robert Livingston (a promoter) lobbied the states strongly to

obtain monopoly rights in river transportation. However, the most insistent in trying to gain multi-state monopoly rights, before the advent of national laws, was the notorious Oliver Evans. Between 1786 and 1789, Evans obtained patents for a series of inventions in flour mills and steam wagons, from the legislatures of Pennsylvania, Maryland and New Hampshire.

Throughout the eighteenth century, states continued to offer premiums and subsidies for their favoured manufactures. In 1775 the Continental Congress “recommended to the several Provincial Conventions, to grant such premiums, for the refining of Sulphur in their respective Provinces, as may be judged proper.” It was also suggested that public patronage should encourage the production of saltpeter. A Committee of the Continental Congress similarly opined in 1783 that domestic manufactures were important to avoid increasing the foreign debt, so it “recommended to the legislatures of the States to countenance and encourage the establishment of useful manufactures either by premiums or by such other means as they may find most effectual which are consistent with the Confederation...”(Ford 1905).

The influential Alexander Hamilton advocated an arsenal of commercial policies, including tariffs, restrictions on exports, quotas, subsidies and bonuses, quality controls on manufactures and exports, and improvements in infrastructure necessary for market expansion. He was also a strong supporter of the use of premiums as an integral element in innovation policy.¹⁶ In the critical year of 1787, Tench Coxe exhorted the Pennsylvania Society for the Encouragement of Manufactures and the Useful Arts to “carefully examine the conduct of other countries in order to possess

¹⁶ See, for instance, the Report on Manufactures (1791), recommending a fund: “to defray the expences of the emigration of Artists, and Manufacturers in particular branches of extraordinary importance--to induce the prosecution and introduction of useful discoveries, inventions and improvements, by proportionate rewards, judiciously held out and applied--to encourage by premiums both honorable and lucrative the exertions of individuals, And of classes, in relation to the several objects, they are charged with promoting--and to afford such other aids to those objects, as may be generally designated by law... The propriety of stimulating by rewards, the invention and introduction of useful improvements, is admitted without difficulty. But the success of attempts in this way must evidently depend much on the manner of conducting them. It is probable, that the placing of the dispensation of those rewards under some proper discretionary direction, where they may be accompanied by collateral expedients, will serve to give them the surest efficacy. It seems impracticable to apportion, by general rules, specific compensations for discoveries of unknown and disproportionate utility... The operation and utility of premiums have been adverted to; together with the advantages which have resulted from their dispensation, under the direction of certain public and private societies... It may confidently be affirmed that there is scarcely any thing, which has been devised, better calculated to excite a general spirit of improvement than the institutions of this nature. They are truly invaluable” (Syrett et al., eds, 1961, p.79).

ourselves of their methods of encouraging manufactories and pursue such of them, as apply to our own situation” and, like his colleague Alexander Hamilton, he recommended the adoption of premiums to achieve these ends.¹⁷ Pennsylvania was already noted for its strong measures to advance manufactures, such as an 1788 Act “to Encourage and Protect the Manufacturers of this State,” which imposed fines and jail terms on “ill-designing persons” who exported machines or devices or attempted to lure artisans to leave the country.

IV. FRAMING THE INTELLECTUAL PROPERTY REGIME

The delegates who gathered in Philadelphia in the summer of 1787 to draw up a blueprint to “promote the general Welfare” had ample suggestions for how to proceed that they could extract from history, recent and more distant. The document they finally produced included a succinct clause (Art. 1, sec. 8, cl. 8) to protect the writings and discoveries of authors and inventors. It was notably the first time in history that an intellectual property provision was included in a national constitution.

The intellectual property clause was not included in the first draft of the Constitution. Instead, the debates record a list of related proposals, which were submitted on August 18 1787. These included proposals "to secure to literary authors, their copyrights for a limited time," "to encourage, by proper premiums and provisions, the advancement of useful knowledge and discoveries," and "to grant patents for useful inventions." It was also proposed "to establish public institutions, rewards and immunities, for the promotion of agriculture, commerce, trades, and manufactures" (Farrand, ed, 1937). These provisions were all familiar policy instruments that had prevailed in Europe and in the colonies themselves since the seventeenth century. However, the convention rejected the bundling of incentives for invention and innovation, because such powers

¹⁷ “Premiums for useful inventions and improvements, whether foreign or American, for the best experiments in any unknown matter, and for the largest quantity of any valuable raw material, must have an excellent effect. They would assist the efforts of industry, and hold out the noble incentive of honourable distinction to merit and genius” (Coxe 1787). *Scientific American* (1852, p. 221) would later dismiss out of hand such “Government Rewards for Discoveries,” as “impractical and liable to the grossest abuse... special systems , where favors are sought for and obtained by particular parties in a particular manner.”

were “deemed too broad and sweeping” and allowed overly expansive discretion to the government.¹⁸ The unique preamble to the intellectual property clause (“to promote the progress of science and useful arts”) implied that private monopolies to benefit privileged individuals or special groups were not to be permitted. Instead, the primary purpose was to encourage social welfare through advances in knowledge and technology, and the means to achieve this objective was through the temporary grant of exclusive rights to authors and inventors alone.

Some might speculate that the silence of the records on the proceedings regarding this clause indicate that the matter was of little interest or import to the delegates. However, that hypothesis is disproved by subsequent events. In the first address to Congress in 1790, George Washington urged: “The advancement of agriculture, commerce, and manufactures, by all proper means, will not, I trust, need recommendation; but I cannot forbear intimating to you the expediency of giving effectual encouragement, as well to the introduction of new and useful inventions from abroad as to the exertion of skill and genius at home... Nor am I less persuaded, that you will agree with me in opinion, that there is nothing which can better deserve your patronage, than the promotion of science and literature. Knowledge is, in every country, the surest basis of public happiness.”

Congress quickly complied by passing a patent statute 10 April 1790.¹⁹ The United States is noted for creating the first modern patent institution in the world, a system whose features differed in significant respects from those of other major countries. The individuals who shaped early American patent policy were convinced that individuals responded to incentives. Accordingly, they carefully calibrated individual features of the patent system to ensure that the system was effective in promoting inventive activity. This orientation was evident at the highest levels (the inclusion of an intellectual property clause in the U.S. Constitution) to the most detailed

¹⁸ According to Story (1833, v. 2): “In regard to the rejection of the proposition in the convention “to establish institutions, rewards, and immunities for the promotion of agriculture, commerce, trades, and manufactures... It is notorious, that, in the convention, an attempt was made to introduce into the constitution a power to encourage manufactures; but it was withheld. ...it involved a direct power to establish institutions, rewards, and immunities for all the great interests of society, and was, on that account, deemed too broad and sweeping. It would establish a general, and not a limited power of government.”

¹⁹ For accounts of the development of the American patent system see Bugbee (1967); Khan (2005); and Khan and Sokoloff (2001).

(provisions to enable patentees in rural areas to mail in their applications without having to pay postage.) The conviction that the design of patent systems mattered was also shared by the inventors themselves and by other participants in the market for technology.

The historical record indicates that the legislature's creation of a uniquely American system was a deliberate and conscious process. In the first place, a combined intellectual property bill, HR 10, was tabled, and instead separate statutes were enacted for patents and copyrights. Second, the separate patent bill laid before Congress, HR-41, was amended in several places. The most minor of these amendments is suggestive: patents were to be granted in the name of the people of the United States rather than the executive office. The draft of this patent bill echoed a number of other British practices, but the copy that Washington later approved differed significantly from historical precedent, in ways that favoured the rights of inventors. The House deleted Section 6, which had imitated the English policy of granting patents for imported inventions.²⁰ As Justice Joseph Story commented, the Constitution does not permit anyone other than the true inventor to be benefited. The Senate extended the initial definition of novelty: the patent laws still employed the language of the English statutes in allowing patents to the "first and true inventor" but, unlike in England, the phrase was used literally to protect inventions that were new and original to the world, not simply within domestic borders. A section regarding interferences (or conflicting applications) was replaced by a stipulation that information about prior inventions should be readily available to potential patentees. The Senate suggested forcing patentees to work the patent or else license others to do so, but the House rejected this as an unwarranted infringement of the patentee's rights. Moreover, small reductions were made to the fee schedule, which was modest to begin with (de Pauw (ed) 1987, 1631-37).

The basic parameters of the U.S. patent system were transparent and predictable, in itself an aid to those who wished to obtain patent rights. The primary feature of the "American system" is

²⁰ "Sec. 6: And be it further enacted, That any person, who shall after the passing of this act, first import into the United States from any foreign country, any art, machine, engine, device or invention, or any improvement thereon, not before used or known in the said States, such person, his executors, administrators and assigns, shall have the full benefit of this act, as if he were the original inventor or improver within the said States." [p. 1631] [fn 42, p. 1631: "The House struck out this section."]

that all applications are subject to an examination for conformity with the laws and for novelty.²¹

An examination system was set in place in 1790, when a select committee consisting of the Secretary of State (Thomas Jefferson), the Attorney General and the Secretary of War scrutinized the applications. These duties understandably proved to be too time-consuming for highly-ranked officials with other onerous duties, so three years later it was replaced by a registration system. The validity of patents was left up to the district courts, which had the power to set in motion a process that could end in the repeal of the patent. The laws were enforced by a judiciary which was willing to grapple with difficult questions such as the extent to which a democratic and market-oriented political economy was consistent with exclusive rights. Courts explicitly attempted to implement decisions that promoted economic growth and social welfare.²²

Reforms in 1836 set in place the essential structure of the current patent system. In particular, the 1836 Patent Law established the Patent Office, whose trained and technically qualified employees were authorized to examine applications. In order to constrain the ability of examiners to engage in arbitrary actions, the applicant was given the right to file a bill in equity to contest the decisions of the Patent Office with the further right of appeal to the Supreme Court of the United States. American patent policy likewise stands out in its insistence on affordable fees. Such payments were not intended to exact a price for the patent privilege or to raise revenues for the state – the disclosure of information was the price of the patent property right – rather, they were imposed merely to cover the administrative expenses of the Office.²³ The Patent Office itself

²¹ Although the statutes proposed to grant patents for “new and useful” inventions, in practice the utility claim was never enforced. Courts declared that it was up to the market, not to administrators, to determine what was useful. In the 1817 case, *Lowell v. Lewis*, 15 F. Cas. 1018, Joseph Story charged the jury that the utility of the invention “is a circumstance very material to the interest of the patentee, but of no importance to the public. If it is not extensively useful, it will silently sink into contempt and disregard.” It was thus the role of the market, rather than the courts, to determine the ultimate success of the patent. This policy was continued by the Patent Office, which also did not attempt to gauge the social or technical value of an invention, deciding conflicting claims predominantly on the basis of novelty.

²² “The Constitution of the United States, in giving authority to Congress to grant patents for a limited period, declares the object to be to promote the progress of science and the useful arts, an object as truly national and meritorious, and well founded in public policy, as any which can possibly be within the scope of national protection.” *Ames v. Howard*, 1 Sumn. 485 (Mass.) 1833.

²³ The legislature debated the question of appropriate fees, and the first patent law in 1790 set the rate at the minimal sum of \$3.70 plus copy costs. In 1793 the fees were increased to \$30, and were maintained at this level until 1861. In that year, they were raised to \$35, and the term was changed from fourteen years (with

was a source of centralized information on the state of the arts, and Congress was also concerned with the question of providing for decentralized access to patent materials. Legislation ensured that information about the stock of patented knowledge was readily available and diffused rapidly. As early as 1805 Congress stipulated that the Secretary of State should publish an annual list of patents granted the preceding year, and after 1832 also required the publication in newspapers of notices regarding expired patents.

The American patent system was based on the presumption that patents for new inventions were not monopolies, and that social welfare coincided with the individual welfare of inventors. Accordingly, legislators emphatically rejected restrictions on the rights of American inventors. Working requirements or compulsory licenses, standard measures of colonial legislatures to attenuate monopoly power, were regarded as unwarranted infringements of the rights of “meritorious inventors,” and incompatible with the philosophy of U.S. patent grants. Patentees were not required to pay annuities to maintain their property, there were no opposition proceedings, and once granted a patent could not be revoked unless there was evidence of fraud. One of the advantages of a system that secures property rights is that it facilitates contracts and trade, and an extensive national network of licensing and assignments developed early on, aided by legal rulings that overturned contracts for useless or fraudulent patents.

American patent laws provided strong protection for citizens of the United States, but varied over time in its treatment of foreign inventors.²⁴ The statutes of 1793, 1800 and 1832, restricted patent property to citizens or to residents who declared that they intended to become

the possibility of an extension) to seventeen years (with no extensions.) The 1869 Report of the Commissioner of Patents compared the \$35 fee for a US patent to the significantly higher charges in European countries such as Britain, France, Russia (\$450), Belgium (\$420) and Austria (\$350). The Commissioner speculated that both the private and social cost of patenting were lower in a system of impartial specialized examiners, than under a system where similar services were performed on a fee-per-service basis by private solicitors.

²⁴“With the constitution, the English statute and the adjudication upon it before them, Congress have declared the intention of the law to be to promote the progress of the useful arts by the benefits granted to inventors; not by those accruing to the public, after the patent had expired, as in England. This is most evident from their imposing as conditions, that the invention must be new to all the world, and the patentee be a citizen of the United States. If public benefit had been the sole object, it was immaterial where the invention originated, or by whom invented; but being for the benefit of the patentee, the meritorious cause was invention, not importation, and the benefit was not extended to foreigners, in which respects the law had been otherwise settled in England.” *Whitney et al. v. Emmett et al.*, 29 F. Cas. 1074, 1831.

citizens. As such, while an American could not appropriate patent rights to a foreign invention, he could freely use the idea without any need to bear licensing or similar costs that would otherwise have been due if the inventor had been able to obtain a patent in this country. In 1836, the stipulations on citizenship or residency were removed, but were replaced with discriminatory patent fees: foreigners could obtain a patent in the U.S. for a fee of three hundred dollars, or five hundred if they were British. The 1832 and 1836 laws stipulated that foreigners had to exploit their patented invention within eighteen months. These clauses seem to have been interpreted by the courts in a fairly liberal fashion, since alien patentees “need not prove that they hawked the patented improvement to obtain a market for it, or that they endeavoured to sell it to any person, but that it rested upon those who sought to defeat the patent to prove that the plaintiffs neglected or refused to sell the patented invention for reasonable prices when application was made to them to purchase.”²⁵ Moreover, the records indicate that a significant number of foreign inventors petitioned Congress and readily succeeded in obtaining the right to patent their inventions in the United States.

Such discriminatory provisions proved to be temporary aberrations and were not included in subsequent legislation. After 1861 patent rights were available to all applicants on the same basis without regard to nationality. The patent record itself (Figure 1) reveals a likely reason for the liberal treatment of foreign inventors: until the middle of the twentieth century there was relatively little patenting by foreigners in the United States, largely because of the superiority of U.S. technologists and technologies. During the proceedings to celebrate the centenary of the U.S. patent system, this “liberality” was noted as one of its essential features: “Our law gives to all men of all nations the same privileges, and recognizes to the fullest extent the international character of property in inventions. In this respect ... the United States may claim to have led the world and to be leading it still” (Seeley, 1892).

²⁵Tatham et al. v. Lowber et al., 23 F. Cas. 721 April 21, 1847.

Despite their common source in the intellectual property clause of the U.S. Constitution, copyright policies provided a marked contrast to the patent system in the United States.²⁶ In the period before the Declaration of Independence, although individual American states recognized and promoted copyright protection, it was not considered to be of equal importance with innovation policies. First, in a democracy the claims of the public and the wish to foster freedom of expression were paramount. Second, to a new colony, pragmatic concerns were likely of greater importance than the arts, and more substantial literary works were imported from Europe. Demand was sufficiently shallow that an individual could saturate the market with a first run printing, and most local publishers produced ephemera such as newspapers, almanacs, and bills. Third, it was unclear that copyright protection was needed as an incentive for creativity, especially since a significant fraction of output was devoted to works such as medical treatises and religious tracts whose authors wished simply to maximize the number of readers, rather than the amount of income they received.

The earliest federal statute to protect the product of authors was approved on May 31 1790, “for the encouragement of learning, by securing the copies of maps, charts, and books to the authors and proprietors of such copies, during the times therein mentioned.”²⁷ John Barry obtained the first federal copyright when he registered his spelling book in the District Court of Pennsylvania and early grants reflected the same utilitarian character. Policy makers felt that copyright protection would serve to increase the flow of learning and information, and by encouraging publication would contribute to democratic principles of free speech. The diffusion of knowledge would also ensure broad-based access to the benefits of social and economic development.

²⁶See *Wheaton v. Peters*, 33 U.S. 591, 684 (1834): “It has been argued at the bar, that as the promotion of the progress of science and the useful arts is here united in the same clause in the constitution, the rights of the authors and inventors were considered as standing on the same footing; but this, I think, is a non sequitur...for when congress came to execute this power by legislation, the subjects are kept distinct, and very different provisions are made respecting them.”

²⁷The copyright act required authors and proprietors to deposit a copy of the title of their work in the office of the district court in the area where they lived, for a nominal fee of sixty cents. Registration secured the right to print, publish and sell maps, charts and books for a term of fourteen years, with the possibility of an extension for another like term. Amendments to the original act extended protection to other works including musical compositions, plays and performances, engravings and photographs. Legislators refused to grant perpetual terms, but the length of protection was extended in the general revision of the laws in 1831, and 1909.

In the case of patents, the rights of inventors, whether domestic or foreign, were widely viewed as coincident with public welfare. In stark contrast, policymakers showed from the very beginning an acute sensitivity to trade-offs between the rights of authors (or publishers) and social welfare. The protections provided to authors under American copyright laws were as a result much more limited than those of most European countries, which increasingly made grants on the basis of moral rights. Of relevance here are stipulations regarding first sale, work for hire, and fair use. Under a moral rights-based system, an artist or his heirs can claim remedies if subsequent owners alter or distort the work in a way that allegedly injures the artist's honour or reputation. According to the first sale doctrine, the copyright holder loses all rights after the work is sold. In the American system, if the copyright holder's welfare were enhanced by nonmonetary concerns, these individualized concerns could be addressed and enforced through contract law, rather than through a generic federal statutory clause that would affect all property holders. Similarly, "work for hire" doctrines repudiated the right of personality in favour of facilitating market transactions.

This difficult quest for balance between private and public good is most evident in the copyright doctrine of "fair use" that (unlike patents) allowed unauthorized access to copyrighted works under certain conditions. The fair use doctrine was initially articulated in England, but found its most expansive elaboration in the American system as a way of ensuring that the monopoly costs of an exclusive right in expression would be minimized. One of the striking features of the fair use doctrine is the extent to which property rights were defined in terms of market valuations, or the impact on sales and profits, as opposed to a clear holding of the exclusivity of property. Joseph Story ruled in *Folsom v. Marsh* [9 F. Cas. 342 (1841)]: "we must often, in deciding questions of this sort, look to the nature and objects of the selections made, the quantity and value of the materials used, and the degree in which the use may prejudice the sale, or diminish the profits, or supersede the objects, of the original work." Fair use doctrine thus illustrates the extent to which the early policy makers weighed the costs and benefits of private property rights against the rights of the public and the provisions for a democratic society. If copyrights were as strictly construed as patents, it would serve to reduce scholarship, prohibit

public access for noncommercial purposes, increase transactions costs for potential users, and inhibit learning which the statutes were meant to promote.

The basic dimensions of the copyright statute in its domestic provisions were not dissimilar to the English Statute of Anne, but it included a startling innovation in the treatment of international copyright protection. The 1790 Copyright Act specified that “nothing in this act shall be construed to extend to prohibit the importation or vending, reprinting or publishing within the United States, of any map, chart, book or books ... by any person not a citizen of the United States.” The U.S. was long a net importer of literary and artistic works, especially from England, which implied that recognition of foreign copyrights would have led to a net deficit in international royalty payments. The legislators explicitly acknowledged the imbalance in the cultural ledger, and therefore authorized Americans to take free advantage of the cultural output of other countries. The tendency to reprint foreign works was encouraged by the existence of tariffs on imported books that ranged as high as 25 percent.

The United States stood out in contrast to countries such as France which prohibited counterfeiting of both foreign and domestic works. Other countries which were affected by American “piracy” retaliated by refusing to recognize American copyrights. Despite the lobbying of numerous authors and celebrities on both sides of the Atlantic, the American copyright statutes did not allow for copyright protection of foreign works for fully one century.²⁸ As a result, the nineteenth century offers a colourful episode in the annals of intellectual property, as American publishers and producers pirated foreign literature, art, and drama in accordance with its own laws.

It is widely acknowledged that copyrights in books tended to be the concern of publishers rather than of authors (although the two are naturally not independent of each other). As a result of the lack of legal copyrights in foreign works, publishers raced to be first on the market with the “new” pirated books, and the industry experienced several decades of intense, if not quite “ruinous”

²⁸John Ruggles was one of the leading authorities in Congress on the patent system and a strong proponent of the 1836 changes in the patent law. He was also a key member of a committee to consider reforming international copyrights, and argued that “American ingenuity in the arts and practical sciences would derive at least as much benefit from international patent laws, as that of foreigners. Not so with authorship and book-making. The difference is too obvious to admit of controversy” (Barnes 1974, 71).

competition. These were problems that publishers in England had faced before, in the market for uncopyrighted books, such as Shakespeare and Fielding (Collins 1927). Their solution had been to collude in the form of strictly regulated cartels or “printing congers,” which created divisible alienable property in books. Cooperation resulted in risk sharing and a greater ability to cover expenses. The unstable races in the United States similarly settled down during the 1840s to collusive standards that were termed “trade custom” or “courtesy of the trade.”

The industry achieved relative stability because the dominant firms cooperated in establishing synthetic property rights in foreign-authored books. American publishers made payments (termed “copyrights”) to foreign authors to secure early sheets, and other firms recognized their exclusive property in the “authorized reprint”. Advance payments to foreign authors not only served to ensure the coincidence of publishers’ and authors’ interests – they were also recognized by “reputable” publishers as “copyrights.” These exclusive rights were tradable, and enforced by threats of predatory pricing and retaliation. Such practices suggest that publishers were able to simulate the legal grant through private means. However, private rights naturally did not confer property rights that could be enforced at law. The case of *Sheldon v. Houghton* [21 F. Cas 1239 (1865)] illustrates that these rights were considered to be “very valuable, and is often made the subject of contracts, sales, and transfers, among booksellers and publishers.” The court pointed out that “if anything which can be called, in any legal sense, property, was transferred to this partnership, this was based on the custom of the trade, which “is very far from being a legal custom, furnishing a solid foundation upon which an inviolable title to property can rest, which courts can protect from invasion. ... It may be an advantage to the party enjoying it for the time being, but its protection rests in the voluntary and unconstrained forbearance of the trade. I know of no way in which the publishers of this country can republish the works of a foreign author, and secure to themselves the exclusive right to such publication ... For this court to recognize any other literary property in the works of a foreign author, would contravene the settled policy of Congress.” Thus, synthetic rights differed from copyrights in the degree of security that was offered by the enforcement power of the courts. Nevertheless, these title-specific rights of exclusion decreased

uncertainty, enabled publishers to recoup their fixed costs, and avoided the wasteful duplication of resources that would otherwise have occurred.

It was not until 1891 that the Chace Act granted copyright protection to selected foreign residents. Thus, after a century of lobbying by interested parties on both sides of the Atlantic, based on reasons that ranged from the economic to the moral, copyright laws only changed when the United States became more competitive in the international market for cultural goods. However, the act also included significant concessions to printers' unions and printing establishments, in the form of "manufacturing clauses." Books had to be published in the U.S. before or at the same time as the publication date in its country of origin. The work also had to be printed here, or printed from type set in the United States or from plates made from type set in the United States. Copyright protection still depended on conformity with stipulations such as formal registration of the work. These clauses resulted in U.S. failure to qualify for admission to the Berne Convention until 1988, more than one hundred years after the first Convention for the harmonization of international copyright laws.

V. LOOKING BACKWARD

The framers of the American system of intellectual property intended to promote social progress in a democratic society. This utilitarian objective explains the elements that were drawn from prior examples across time and region, as well as the innovations in the design of the system. The framers wished to avoid the "pernicious monopolies" that plagued the prior grant of privileges in Europe and American colonies, hence the rejection of premiums and broad powers to encourage innovation. In the new Republic, only true inventors were to be benefited, not importers, the well-connected or monopolists. In order to identify those who deserved these rights, an examination system was instituted, and protection would be allowed to only those inventions that were new to the world. Moreover, all inventors, not just the wealthy or well-connected, would be allowed access to exclusive rights, and the determination of useful knowledge would be left to the market rather than to judges or committees. Once granted to "meritorious patentees," these rights were not

to be infringed on, either by other inventors, or by society itself in the form of working requirements or price controls. The diffusion of information was ensured through the deposit of models and information and publication of specifications.

As for copyright, the interests of authors were less aligned to those of a democratic society, which had a critical interest in the diffusion of information, education and learning. Moreover, the European experience raised concerns about the use of copyright powers to impose censorship and limit free speech. Hence, Congress would be less generous in its provisions for the protection of authorship, allowing shorter terms than in any other developed country, and requiring strict compliance with the statutory provisions, on pain of annulment of the right. The judiciary likewise permitted unauthorized access to copyrighted products through a stronger “fair use doctrine” than any that had previously existed. Moreover, effective public policy required withholding protection to the rights of foreign authors while the balance of trade was unfavourable to American citizens. Thus, for both patents and copyrights, the calibration of systemic design was directed toward allowing rights to individuals in order to offer enough incentives for productivity and creation, while ensuring that overall social welfare was enhanced through wider access to these cultural inventions. This calculus created property rights in patents that were the strongest in the world, and a system of copyrights that were among the weakest in the world.

Comparisons across Europe and the United States suggest that their respective policy choices regarding intellectual property affected the rate and direction of inventive activity. Differences in the design of patent institutions were responsible in part for the contrasts in the American experience relative to other countries. As Figure 1 shows, per capita rates of patenting in the United States grew rapidly, and contemporary observers credited favourable institutions for its competitiveness. American technologies were soon recognized as the most productive and innovative in the world. Patterns of inventors and inventions were also affected by the intellectual property rules: U.S. inventors were drawn from a wider spectrum of the population than in Europe, and inventiveness was also far more broadly distributed across all industries. Markets in patent rights and patented inventions flourished, and this market-orientation was especially beneficial to

patentees who did not have the financial resources to exploit their patents. These observations are consistent with the patterns of productivity and economic growth across countries. U.S. productivity gains were evident in all sectors, even labour-intensive industries, and its growth were balanced. In Britain, by contrast, patented inventions tended to be quite capital-intensive, and clustered in a few industries such as steel and textiles; it is likely not coincidental that British productivity was lower, limited to these few industries, and they experienced unbalanced economic growth.

The historical evidence regarding intellectual property therefore strongly suggests that the design of rules and standards mattered. The U.S. patent system was universally acknowledged to be the model prototype for the protection of inventions and inventors and in order to benefit globally-competitive American patentees, the United States took the lead to encourage other countries to strengthen their patent laws in line with American policies. However, we should not overlook the fact that patent systems are embedded in a set of related institutions, such as the legal system, markets for technology, and organizations that facilitate the acquisition of skills and learning. For, if other institutions are not responsive and enabling, even a well-designed patent system can be ineffective. The Founding Choices regarding intellectual property proved to be eminently favourable for social and economic development, but the flexibility of the institutional mechanisms in accommodating change and new circumstances was equally important. When the British finally restructured their patent system in the direction of the American system, reforms were limited by incapacity in other directions such as educational institutions.

American exceptionalism was also evident in the area of copyrights, but in the opposite direction to patents. The United States emphasized the importance of mass literacy and public education, and abridged copyrights when a conflict might exist between learning and copyright. Thus, it lagged behind the rest of the world in terms of both domestic and foreign copyright protection. Americans not only refused to adhere to international copyright treaties long upheld by European countries, for a century they continued to engage in copyright piracy of foreign cultural products even in the face of widespread protests and condemnation. It is very likely that such

American “copyright piracy” benefited the country initially when the United States was a net debtor. But once the balance of trade moved in its favour, the United States had an incentive to adopt stronger laws to protect its authors internationally. By way of contrast, European policymakers regarded copyright owners as geniuses who were deserving of strong protection for the products of their personality, and their copyright regimes evolved in the direction of inherent and inalienable author’s rights. Consequently, France took the lead in promoting the harmonization in international copyright laws. Today’s movement to harmonize patent and copyright laws can be traced to these two separate sources that culminated in stipulations for a system of uniformly strong patents and strong copyrights regardless of the level of economic development. Such a system did not exist anywhere in the world during the period when countries enjoyed greater freedom to choose appropriate institutions.

In the United States of the 21st century, as in the eighteenth century, there is no shortage of proposals regarding policies that might best promote social and economic development. Ironically, in direct contrast to the Founding Choices, the prevailing policies comprise measures that result in weak patents and strong copyrights. The patent system has departed from the original objectives of the creators of the system, with a faulty examination system, proposals to issue patents to first filers rather than to the first inventor, judicial considerations of utility and creativity in determining validity, and patentable subject matter held to include “anything under the sun” that man can create. A number of economists have been persuaded by the superior theoretical properties of such alternative policy instruments as state-sponsored awards, buyouts and prizes, and some even echo nineteenth-century European advocates for the abolition of intellectual property rights. The departures are even more blatant in the copyright regime. Today, copyright laws are largely determined by industry lobbies, with few to defend the public interest. Similarly, international copyright harmonization has created a mixed and muddled domestic system that conflicts with the intent of the founders. The Supreme Court has approved a virtually perpetual copyright and, rather than the public domain being the default, copyright is now the default. Extensions to the power of copyright owners are now justified on the basis of the creativity of authors, rather than the benefits

to society. New technologies such as encryption and the threat of costly litigation allow owners the ability to expand their rights of exclusion in ways that avoid the limitations and constraints that the early laws incorporated to protect public welfare.

Thomas Jefferson pointed out that he was "not an advocate for frequent and untried changes in laws and constitutions... But... laws and institutions must go hand in hand with the progress of the human mind."²⁹ The extent to which institutions must alter to accommodate social and economic change is a subtle question that admits of a number of equally valid and opposing answers. At the same time, it is always worthwhile to reconsider the fundamental principles on which those laws and constitutions were originally founded. Looking backward to that summer in 1787, it is useful to speculate whether today's intellectual property institutions have diverged too far afield from the original constitutional blueprint for promoting the progress of science and useful arts.

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²⁹ In a letter to Samuel Kercheval, July 12, 1810. Available online at the Electronic Text Center, University of Virginia Library.

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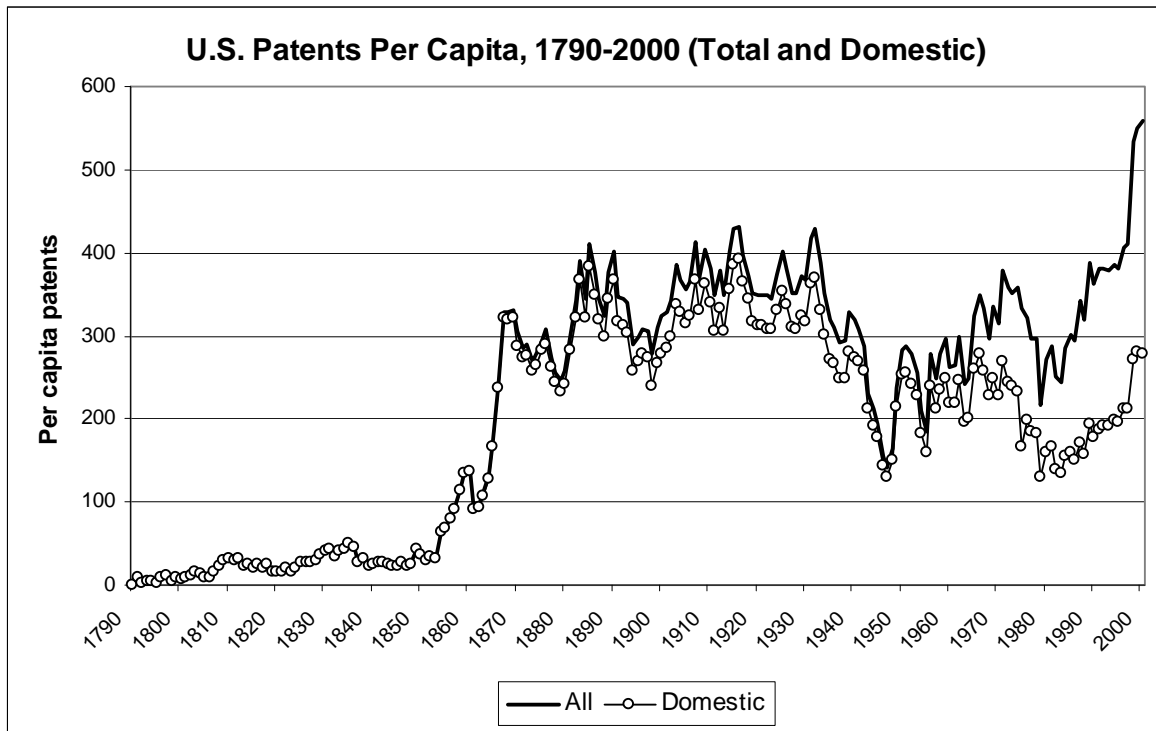
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Figure 1



Sources: U.S. Patent Office and Department of Census, various years. The data comprise patents per million residents, with figures for domestic patents excluding patents filed by foreign residents.